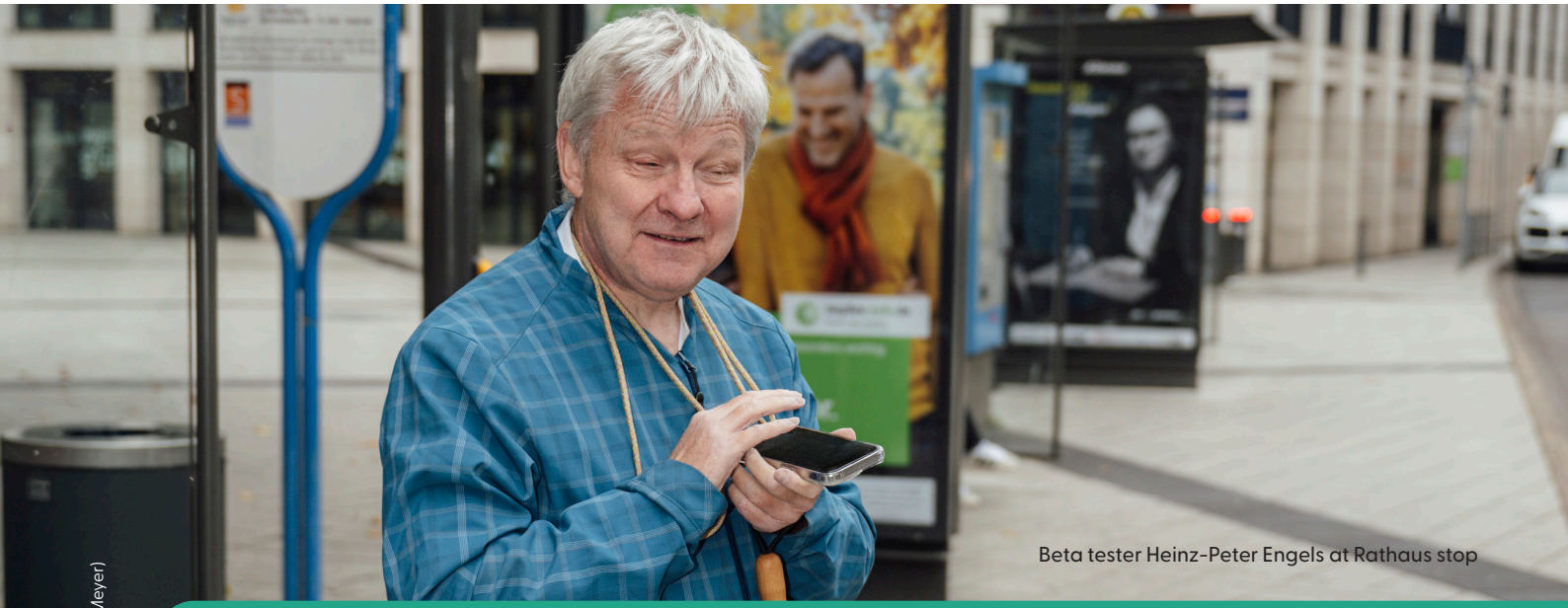
ebblo

CASE STUDY



Beta tester Heinz-Peter Engels at Rathaus stop

(Image: Saarbahn/Manuela Meyer)

Saarbahn GmbH

Implementation of the mobility assistance system INTROS

INTROS

Saarbahn

sbv fsa

Making it easier for the blind and visually impaired and for people with restricted mobility to use urban public transport, thus ensuring they can take part in social life – that is the aim of ebblo's mobility assistance system INTROS. Saarbahn's roll-out of INTROS has set a milestone for inclusion.

People with impaired vision face huge challenges when using urban public transport. At the stop, for example, they'll be wondering:
Exactly when will the vehicle arrive? Where is it going?
How can I indicate that I want to get on the vehicle?
How can I attract the driver's attention if I need a bit more time?
These questions affect both the blind and also the visually impaired – and many apply equally to passengers with restricted mobility.

The Independent Travelling Orientation System INTROS was developed by ebblo in cooperation with the Swiss Association for the Blind and Visually Impaired (sbv) and the ebblo affiliate Systemtechnik. INTROS is an assistance system specially devised to allow the blind and visually impaired as well as people with restricted mobility to use urban public transport on their own.

The system components

- **The Intros ÖV-Radar smartphone app:** barrier-free user interface, full screen-reader compatibility
- **Vehicle equipment:** driver terminal, on-board computer, loudspeaker box, IBIS-IP connection
- **Alternative devices:** can also be used with a hand-held transmitter instead of a smartphone

Advantages for passengers

- **Greater independence:** INTROS promotes self-determined mobility for the blind and visually impaired as well as people with restricted mobility
- **Better orientation:** As well as providing barrier-free real-time passenger information, the system also offers assistance in coping with the journey. For example, by clicking on their smartphone, users can let the driver know that they want to get on the vehicle. The driver thus receives the signal that they need to be more alert.
- **Improved accessibility:** Technical implementation of the system makes it easier for disabled people to use urban public transport; other user groups can also benefit.

Advantages for transport operators

- **Compliance with statutory requirements:** Implementing the system fulfils central barrier-free accessibility regulations and actively supports social inclusion goals.
- **Image boost through social responsibility:** INTROS lets companies position themselves as pioneers in terms of inclusive mobility, setting a clear signal for more barrier-free accessibility.
- **Enlarged target group:** Bringing down barriers cultivates new user groups and enhances customer loyalty.
- **More efficient every-day operational workflows:** The barrier-free solution contributes to swifter and more orderly passenger changeovers, particularly at busy stops.
- **High scalability:** With a uniform interface to the on-board computer, the solution can be transferred to other routes, vehicle types or regions.

INTROS fulfils the two-senses principle as per DIN 13278 and uses established standards such as IBIS-IP (VDV 301) for connecting to AVLC systems. It was devised with a special focus on simple usage, reduced complexity and interoperability. A battery-operated hand-held transmitter with induction charging is available for users without a smartphone. It can send vehicle signals, activate a door finding tone or trigger service calls.

The Intros ÖV-Radar smartphone app

Integrated timetable and real-time information: The INTROS app automatically synchronises with timetable data and uses GNSS to recognise the current stop. An intuitive user interface lets users check the next departures, change to different means of transport or save favourites.

The jumping dot function shows the next four stops dynamically during the journey, including information about transfers and terminal stops. Passengers also receive acoustic announcements and visual info texts, depending on their personal settings in the app.

Technical and strategic strengths of INTROS

- **Open interface:** can be integrated with different AVLC systems.
- **Automated vehicle search:** needs-controlled routes and destination announcements support users.
- **Central data management:** via a back office system, device information, timetables and user feedback can be maintained and evaluated.
- **Additional hygienic benefit:** the contactless system design is an additional benefit. All interaction between the passenger and the vehicle is completely digital, using the app or a hand-held transmitter.

> **“From the pilot phase to the mass roll-out, our priority right through has been to work closely with blind and visually impaired passengers.”**

Katharina Meßner-Schalk
Head of Strategic Projects at Saarbahn


(Image: Saarbahn/Manuela Meyer)

Presenting the project at the bus depot

From the left: **Astrid Klug**, Head of Department at Saarland Ministry for Mobility, **Heinz-Peter Engels**, member of the Saarland Association for the Blind and Visually Impaired and representative of the Disability Advisory Board of Saarbrücken, **Torsten Burgardt**, Head of Infrastructure at Saarbahn, Saarbahn CEO **Karsten Nagel** and **Katharina Meßner-Schalk**, Head of Strategic Projects at Saarbahn

Introducing INTROS at Saarbahn – vision, pilot-project and roll-out

With the INTROS information and orientation system, Saarbahn has implemented an innovative solution in a multi-stage project with affected people for affected people. The largest transport operator in the Saarland has put the mobility assistance system in 182 buses. The innovative combination of app and vehicle solution assists visually impaired and blind passengers in their self-determined mobility. For the first time in Germany, the system is now being used on a broad scale in the state capital Saarbrücken. The Saarland Ministry of Mobility funded 75 percent of the costs for the light-house project. Cooperation partners are ebblo Switzerland GmbH, together with the Swiss Association for the Blind and Visually Impaired.

“Right from the start, it was important for us to put users in the focus of the project”, explains Katharina Meßner-Schalk, Head of Strategic Projects at Saarbahn. “From the pilot phase to the mass roll-out, our priority right through has been to work closely with blind and visually impaired passengers.” The mobility assistance system was tested and further developed together with test users. “Other user groups can benefit from the system, such as senior citizens, people who are illiterate or who can’t use normal passenger information due to intellectual impairment”, continues Meßner-Schalk.

Pilot project in advance
Initially, Saarbahn carried out a pilot project in 2020 and 2021, supported by the Saarland Association for the Blind and Visually Impaired, the Disability Officer and the Disability Advisory Board for Saarbrücken, to test a barrier-free information and orientation system on one route, working with blind and visually impaired test users. The test users found the system to be suitable for helping the blind and visually impaired to use urban public transport.

Following the positive pilot phase, Saarbahn launched a European tender. The order for a barrier-free information and orientation system for Saarbahn’s bus fleet was then awarded to ebblo Switzerland GmbH.

System in regular operation since 2024
The system went live on a broad scale throughout Saarbrücken on 20 November 2024.

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The company Saarbahn

Saarbahn has a fleet of 27 trams and 138 buses of its own, conveying 42 million people each year on the roads and tracks in Saarbrücken and the surrounding region. Since 1997, Saarbahn has been the first transport operator in Europe to operate a cross-border service, from Lebach in Germany to Sarreguemines in Lorraine, France. With a workforce of around 600 employees, the Saarbrücken company is the largest transport operator in the Saarland. It operates a tram and bus garage, a driving school and the Saarbahn Service Centre in Saarbrücken city centre.

Conclusion

The INTROS roll-out at Saarbahn has been particularly beneficial to the company's blind and visually impaired passengers, making it easier for them to use urban public transport and enhancing their self-determined mobility. Saarbahn has thus moved closer to achieving its goal of facilitating the broadest possible barrier-free accessibility of its mobility offerings. Reports that the system will now also be rolled out in Kiel, Berlin and Schaffhausen, together with many test operations that are meanwhile in progress, clearly show that the project is tackling an important issue in the industry.

More information about INTROS at Saarbahn can be found here:
www.saarbahn.de/mobilitaetsassistenzsystem

Future prospects

INTROS continues to undergo further improvement and optimisation. The planned functional scope includes, among others, real-time navigation, smooth interchange support, integration in mobility platforms (MaaS) and multi-language capability.

INTROS revolutionises access to urban public transport. The combination of an intuitive app, a robust vehicle module and innovation partnership with sbv makes INTROS a unique system in Europe's mobility landscape.

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